

Citation for published version:

Dawson, C, Veliziotis, M, Pacheco, G & Webber, D 2015, 'Is temporary employment a cause or consequence of poor mental health? A panel data analysis', *Social Science and Medicine*, vol. 134, pp. 50-58.
<https://doi.org/10.1016/j.socscimed.2015.04.001>

DOI:

[10.1016/j.socscimed.2015.04.001](https://doi.org/10.1016/j.socscimed.2015.04.001)

Publication date:

2015

Document Version

Peer reviewed version

[Link to publication](#)

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Accepted Manuscript

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PII: S0277-9536(15)00221-X

DOI: [10.1016/j.socscimed.2015.04.001](https://doi.org/10.1016/j.socscimed.2015.04.001)

Reference: SSM 10031

To appear in: *Social Science & Medicine*

Please cite this article as: Dawson, C., Veliziotis, M., Pacheco, G., Webber, D.J, Is temporary employment a cause or consequence of poor mental health? A panel data analysis, *Social Science & Medicine* (2015), doi: 10.1016/j.socscimed.2015.04.001.

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Is temporary employment a cause or consequence of poor mental health? A panel data analysis

Chris Dawson¹, Michail Veliziotis²,
Gail Pacheco³ and Don J Webber²

¹ School of Management, University of Bath, UK

² Department of Accounting, Economics and Finance, University of the West of England, Bristol, UK

³ Department of Economics, Auckland University of Technology, NZ

Manuscript Number: SSM-D-14-02645R2

Abstract

Mental health status has an association with labour market outcomes. If people in temporary employment have poorer mental health than those in permanent employment then it is consistent with two mutually inclusive possibilities: temporary employment generates adverse mental health effects and/or individuals with poorer mental health select into temporary from permanent employment. We apply regression analyses to longitudinal data corresponding to about 50,000 observations across 8,000 individuals between 1991 and 2008 drawn from the British Household Panel Survey. We find that permanent employees who will be in temporary employment in the future have poorer mental health than those who never become temporarily employed. We also reveal that this relationship is mediated by greater job dissatisfaction. Overall, these results suggest that permanent workers with poor mental health appear to select into temporary employment thus signalling that prior cross section studies may overestimate the influence of employment type on mental health.

Acknowledgements: The authors thank workshop and conference participants for their helpful feedback at the University of Coventry, Work, Employment and Society Conference 2013, Statistics NZ labour market workshop and the NZ Association of Economists conference.

Keywords: Great Britain; Employment transitions; Psychological distress; Anxiety; Life satisfaction; Job satisfaction

Corresponding author: Don Webber, Department of Accounting, Economics and Finance, University of the West of England, Bristol, BS16 1QY, UK. Don.Webber@uwe.ac.uk. Tel: 0044 117 328 3416

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Keywords: Great Britain; Employment transitions; Psychological distress; Anxiety; Life satisfaction; Job satisfaction

1. Introduction

Health and labour market status are intrinsically linked. Analyses of these links adopt two distinct perspectives: first, health impacts on employment and, second, employment impacts on health. Health status can be separated into two mutually inclusive parts: physical and mental health conditions. Although the exact proportions are controversial, the Mental Health Foundation (2014) argues that a quarter of people will experience a mental health condition at some point in their lives and around one in twelve people are affected by depression. This study assesses the relationship between mental health conditions and labour market transitions between permanent and temporary employment.

Although there are an increasing number of studies that focus on the link between health and employment, such as Pirani and Salvini (2015), dominant explanations of the impacts of health on employment typically focus on health as a medically classified condition (Oliver, 1990) and emphasise the effects of clinical factors on an individual's employment capabilities. When an individual is in employment but has a mental health condition they are known to be at risk of experiencing presenteeism, which is where an employee is unwell and remains in work but is less productive. Presenteeism can occur when people with poor mental health lack obvious outward signs and are reluctant to have to prove they are ill because of the resulting stigma (Lelliott et al., 2008). Mental health stigma includes the perception that individuals with mental health disorders are weak, flawed, dangerous and/or socially incompetent (Wahl, 2003) and the desire not to want to be thought of as having these characteristics can deter people from seeking or obtaining help (Hinshaw and Cicchetti, 2000). Chen et al. (2015) argue that rates of presenteeism vary with the perceived level of workplace support, with those feeling least supported having higher rates of presenteeism. Individuals with poor mental health are also known to be less likely to be in employment: in the UK in 2004, 74 percent of the working age population was in employment but the comparable figure for people considered disabled by a long term mental illness was only 21 percent (Social Exclusion Task Force, 2006).

A distinctly different literature emphasises the existence of the reverse association, i.e. that lower labour market status affects health. For instance, Silla et al. (2005) find that temporary workers experience relatively poor health outcomes and Martens et al. (1999) find that employees on temporary contracts, working irregular hours or working compressed working weeks report up to 40 percent more health complaints than those with non-flexible work schedules. However, Bardasi and Francesconi (2004) find no evidence that atypical employment is associated with adverse health consequences.

Hence the literature is divided on whether poor mental health affects labour market status or whether a poorer labour market status affects mental health. The literature is equally unclear about the links between mental health and *changes* in employment status. This article fills this gap in the literature by assessing whether deteriorating health status precedes labour market transitions or vice versa. In particular, it presents temporal relationships between poor mental health and transitions between permanent and temporary employment, and thereby assesses if poor mental health affects or is affected by this type of labour market transition. Although our focus is on the transition between permanent and temporary employment, our methodological approach could be applied to other transitions.

This article contributes to the literature in three ways. First, it presents an investigation into the associations between three indicators of mental health (psychological distress, psychological anxiety and life satisfaction), an overall indicator of general health and transitions between temporary and permanent employment. Second, we draw on data from the British Household Panel Survey (BHPS) to understand whether the link between employment type and health status is more of a causal outcome and/or a selection effect. If the temporarily employed are identified as having poorer mental health than those in permanent employment then it is consistent with two mutually inclusive possibilities: (i) temporary employment generates adverse mental health effects and/or (ii) a selection effect whereby individuals with below average mental health are drawn away from permanent and into temporary employment. This is a particularly pertinent issue as Virtanen et al.'s (2005) review of the empirical associations between temporary employment and psychological morbidity suggests that many results may be confounded by selection bias: if the selection effect is discovered to be more prominent relative to a causal effect then cross sectional studies that present estimates of a negative influence of temporary employment on mental health status may be reporting upwardly biased estimates.

A potential confounding issue is that mental health is associated with job satisfaction, with either lower job satisfaction deteriorating mental health or worsening mental health adversely affecting job satisfaction. We extend our analysis to examine the effect of job satisfaction on mental health and in mitigating any effect of employment type on mental health. This extension is conducive to policy recommendations as mental health conditions can rarely be directly affected by managers whereas job satisfaction often can.

2. Health and employment status

The literature documents the recent upsurge in and diverse range of temporary employment arrangements and the mechanisms through which workers end up in temporary employment (see for example De Cuyper et al., 2008). These mechanisms are varied and heterogeneous with some being free choice (De Jong et al., 2009) whereby workers choose temporary contracts due to preferable attributes, such as greater flexibility. People may end up in temporary employment because of a lack of suitable permanent employment opportunities, and workers may enter temporary employment with the hope that it turns into a permanent contract (De Jong et al., 2009).

Does employment influence health or does health influence employment?

Diverse employment contracts and greater employee flexibility are sought by organizations when they adapt and learn to compete in globally competitive environments (Nollen, 1996). Workers experiencing temporary and limited time contracts, who often have poorer employment protection and lower job security, can experience pressures to fulfil duties in shorter time periods. For instance, Dawson et al. (2014) find that permanent workers in Great

Britain in the period between 1991 and 2008 reported an approximately 40% higher mean level of satisfaction with job security than temporary ones. These pressures can sap energy and intensify psychological stress, and thus it is not surprising that a literature has evolved which suggests that employment status affects health.

The evidence initially appears to corroborate negative associations between temporary employment and health. Temporary workers in most countries appear to experience poorer physical health, such as higher fatigue and muscular pains (Kim et al., 2012) and poorer mental health, such as a greater incidence of depressive symptoms (Quesnel-Vallée et al., 2010). Further corroborating evidence stems from Benavides et al. (2000), who find that workers on fixed-term contracts have worse physical health than permanent workers, and from Hesselink and Van Vuuren (1999), who report higher percentages of workers on fixed-term contracts with physical health complaints than workers on permanent contracts.

Nevertheless, the effects of employment contract on health remain debatable. Part of the reason for a lack of consensus is that much of this literature tends to focus on general health issues and provides evidence using a string of data that combine physical and mental health conditions; this makes it difficult to disentangle mental and physical health conditions from labour market status. For instance, Rodriguez (2002) finds that full-time employees with fixed-term contracts in Germany are 42 percent more likely to report poor health than those who have permanent work contracts, with similar effects not found for Britain.

The lack of clarity on the effects of employment type on health is compounded by studies which show that fixed-term workers may experience better health (Kim et al., 2011). For example, Sverke et al. (2000) find fixed-term contract workers have better physical health compared to permanent workers while Virtanen et al.'s (2003 and 2005) studies show that non-permanent workers in Finland report better health. Similarly, in a study of 15

European countries, Benavides et al. (2000) show that non-permanent employees tend to report lower work stress.

There is also evidence that the dominant direction of this relationship is from health to employment, rather than vice versa. For instance, Meltzer et al. (2002) reveal that just 57 percent of people who have a common mental disorder in the UK were working compared with 69 percent of people who did not. They also found that only 9 percent of people with a probable psychotic disorder were working fulltime.

The debate around the direction of causality between health and employment status requires re-examination through a longitudinal analysis that captures changes in mental health and employment transitions, as only then will we be able to comprehend whether a change in mental health precedes or follows a change in employment.

Health and employment transitions

Some studies do focus on the associations between health status and transitions between employment states, but there is a lack of consensus here too and they suffer from a number of limitations. First, literature discussing effects of employment transitions on health is sparse. One exception is Robone et al. (2011) who find that both contractual and working conditions influence health.

Second, although some literature find that changes in health status contribute to a change in employment status, the vast majority of these empirical studies examine transitions between unemployment and employment only; for example, García-Gómez et al. (2010) find that self-assessed measures of general health and psychological wellbeing are important predictors of employment transitions in and out of the workforce. However, Anthony et al.

(1995) demonstrate that a diagnosis of poor mental health is not a reliable predictor of work capacity but may predict the likelihood of being in employment.

Wagenaar et al. (2012) corroborate García-Gómez et al.'s (2010) findings. They analyse two consecutive waves of The Netherlands' Working Conditions Cohort Study and provide evidence suggesting that emotional exhaustion and poor mental workability are associated with a subsequent downward employment trajectory. Although using two years of data is the minimum necessary to investigate employment transitions, a longer time frame is required if the investigation is going to ensure that specific temporal issues, such as a recession, are not confounding results. A strength of our approach is that the empirical research makes use of 18 waves of BHPS data and differentiates fixed-term from seasonal / agency temping / casual contracts which are known to be distinct groups.

Third, it is plausible that there is no association between employment transitions and health change. For instance, Virtanen et al. (2003) disclose there is no change in health indicators when workers move from fixed-term to permanent jobs in Finland.

Job satisfaction

Mental health may be associated with job satisfaction, with either greater job satisfaction lifting mental health status or improvements in mental health leading to the ability to accrue greater job satisfaction. Such a connection is in line with Booth et al. (2002) who show that temporary workers in the UK report lower job satisfaction than permanent employees.

The suggestion of a contemporaneous association between temporary work and job satisfaction is by no means certain: Connelly and Gallagher (2004) find evidence of equal, lower and higher levels of job satisfaction among temporary workers, relative to permanent ones. Similarly, De Cuyper and De Witte (2007) find permanent employment is negatively

related to job satisfaction while volition is positively related. Such cross-sectional evidence makes it difficult to pinpoint causal directions, and there is scant evidence from longitudinal data sources.

Although the relationship between mental health and job satisfaction may be contemporaneous it is possible that any longitudinal connection between mental health and employment transition is mitigated by an association between mental health and job satisfaction. For example, a recent study by Dawson et al. (2014) found that health differences between permanent and temporary employees in Britain appear to be largely explained by differences in satisfaction with job security. Such findings can lead to slightly different policy implications: if someone suffered a deterioration in their mental health and this increased the risk they would resign, then although their manager might not be able to boost their mental health they may be able to enhance their job satisfaction, which would then mean that the company would be more likely to reap the returns from any training embodied in that worker. Accordingly, this article assesses whether any dynamic relationship between mental health and employment transitions is mitigated by job satisfaction.

This study tackles five questions that lack definitive answers: (i) Does poor mental health have an influence on transitions between permanent and temporary employment? (ii) Does mental health status differ between individuals who never transit into temporary employment and those about to switch into temporary employment? (iii) Do the effects described within (i) and (ii) differ for different types of temporary employment (fixed-term versus seasonal / agency temping / casual)? (iv) Are findings robust to different measures of mental health? (v) Does job dissatisfaction affect relationships between mental health and employment type?

3. Data and descriptive analysis

We employ all 18 waves of the BHPS (1991-2008/2009), which is a nationally representative annual survey of more than 5,000 households and approximately 10,000 individuals in the UK. The BHPS contains self-reported data on a range of topics. We use the original BHPS sample covering Great Britain which means that we exclude from our analysis the European Community Household Panel low income sub-sample from 1997 to 2001, the Scottish and Welsh booster samples added from 1999 onwards and the Northern Ireland sample added from 2001 onwards; these samples are only relevant for types of analyses (e.g. country-level analyses) that are out of the scope of this paper. We also exclude employees that are above the state pension age (16-59 for women, 16-64 for men) and who gave an invalid response to the employment contract question. In line with Booth et al. (2002) and Bardasi and Francesconi (2004), we partition our sample of temporary employees into two distinct groups: those holding a seasonal, agency temping or casual contract ('casuals') and those with fixed-term contracts. This distinction is based on the expectation that fixed term contracts are usually of higher quality, such as junior doctors in the health sector and research fellows in academia. Finally, it should be noted that no ethics approval was needed since we use secondary data in this paper.

Our investigation exploits the panel nature of the BHPS. The data set allows comparisons to be made between respondents in permanent employment who never become temporarily employed (hereafter '*Nevers*') and five mutually exclusive groups: those in permanent employment who subsequently become temporarily employed ('*Futures*'), those in permanent employment who were previously on a temporary contract ('*Pasts*'), those in permanent employment who report a transition into temporary employment in the next period ('*Switchers-in*'), those in permanent employment who report a transition out of temporary

employment from the previous period (*'Switchers-out'*) and those in a spell of temporary employment (*'Temps'*). We retain only employees that are either *Nevers* or *Futures* in their first year of occurrence in the BHPS in order to capture the whole transition process of the latter group. We exclude employees that record multiple transitions but recognise that future research could relax this constraint.

It is worth emphasising the distinction between *Switchers-in* and *Futures*: *Switchers-in* are those in their last period of permanent employment who will become temporarily employed in the next year whereas *Futures* are those currently in permanent employment who report further in the future a change into temporary employment. The same distinction is true for *Pasts* and *Switchers-out*. Our subsequent analysis is conducted separately for our casuals and fixed-terms worker groups based on the above sample partitions.

We use subjective information sourced from three questions to capture mental health status. These data have been used previously in the literature by Bardasi and Francesconi (2004), Taylor et al. (2009) and Clark and Georgellis (2013).

1. **Psychological distress** – The General Health Questionnaire (GHQ) is widely used in the medical literature as an indicator of minor psychiatric morbidity and psychological distress (see McCabe et al., 1996; Taylor et al., 2007; Taylor et al., 2009; Madden, 2010). It has 12 items which each have a four (from 0 – 3) point scoring system that corresponds to frequencies of specific individual feelings relating to psychological wellbeing. The GHQ provides a measure of psychological distress ranging from 0 to 36 and this is collapsed to a 12-point scale that captures the number of GHQ items that correspond to low wellbeing (Clark and Georgellis, 2013). High scores then correspond to low wellbeing and hence higher psychological distress. While the results presented here employ the 12-point scale (“Caseness” version), our findings are robust to using the 36-point scale.

2. **Psychological anxiety** – Respondents are asked in each wave: “*Do you have any of the health problems or disabilities listed on this card?*” A possible answer is “*Anxiety, depression or bad nerves.*” After Wave 12 (2002) of the BHPS, the showcard for this question also included the term “psychiatric problems”. Responses are binary and take the value of one if an individual suffers from a mental health condition related to anxiety or depression and zero otherwise.
3. **Life dissatisfaction** – In waves 6–10 and 12–18 respondents were asked: “*How dissatisfied or satisfied are you with your life overall?*” Responses were recorded on a 7-point Likert scale ranging from ‘not satisfied at all’ to ‘completely satisfied.’ We reorder this variable so that it is decreasing in life satisfaction and retain the same range.

The correlations between the three measures of mental distress are sufficiently small to indicate that they measure different aspects of mental distress. The largest correlation is between psychological distress and life dissatisfaction (0.47) with the two remaining correlations being lower than 0.3.

We also make use of a general health indicator that permits comparison of the relationships between mental health and employment type versus general health and employment type. Specifically, we use the following information:

4. **Poor General Health** – Respondents are asked in each wave (except for 1999): “*Compared to people of your own age, would you say your health over the last 12 months on the whole has been: excellent, good, fair, poor or very poor?*” From this question, we construct a 5-point scale that is increasing in poor general health.

Table 1 summarises the means of the health indicators for our casuals and fixed-term groups based on our sample partitions: *Futures*, *Switchers-in*, *Temps*, *Switchers-out*, *Pasts* and *Nevers*. Figure 1 reports percentage differences for each health measure for our various sample partitions relative to *Nevers*. The solid lines correspond to those in the casuals sample and the dashed lines corresponds to those on the fixed-term sample. For casuals, *Nevers* and *Switchers-out* tend to have the best health. *Futures*, *Switchers-in* and *Temps* have the worst mental health with little difference in health status between *Switchers-in* and *Temps*. This tentatively suggests that relatively poor mental health is not a consequence of becoming a temporary worker but may actually be present in individuals who will be in temporary employment in the immediate future. Similar patterns of relatively poor health are evident for those who experience fixed-term contracts. However, in the vast majority of cases individuals experiencing fixed-term contracts report better health than individuals experiencing casual contracts. For our fixed-term sample, *Futures*, *Switchers-in* and *Temps* report slightly worse health than *Nevers*, but this does not hold for *Switchers-out*. In many cases *Switchers-out* have no worse health than *Nevers*, suggesting that better health is associated with returning to permanent employment. An online Appendix provides descriptive statistics for the full set of variables used in our regression analysis [INSERT LINK TO ONLINE APPENDIX]. It shows that individuals who experience temporary employment contracts work fewer hours on average relative to *Nevers*, while *Nevers* are more likely to be managers and have a bonus or profit share as part of their employment contract.

[Insert Table 1 here]

[Insert Figure 1 here]

4. Methodological approach

A standard procedure to determine whether health status differs between contract types is to estimate health equations that include dummy variables to identify the influence of contract type. Studies that employ this standard cross-sectional approach generally find that temporary contracts are negatively associated with mental health (e.g. Virtanen et al., 2005; Silla et al., 2005). However, cross-sectional estimates may be an amalgam of causal influences and selection effects. The latter can arise if individuals with poor health seek flexible employment contracts or if unobservable individual characteristics, such as motivation or attitudes towards work, predict both the type of employment contract and workers' health. In order to control for these possibilities, the dominant strategy is to estimate the relationship between health and contract type using a fixed effects estimator. Such estimators are designed to explore causal influences of contract-type on health by identifying individuals who transition into and out of temporary employment and examining the corresponding changes in health. Studies that exploit longitudinal data by employing fixed effects estimators tend to find little or no association between contract type and health (e.g. Bardasi and Francesconi, 2004; Green and Heywood, 2011), which suggests that cross-sectional estimates are upwardly biased.

However, this approach may also be subject to serious limitations. An insignificant coefficient attached to a temporary contract covariate in a fixed effects regression may itself be the result of two distinct mechanisms: first, a selection / sorting effect, whereby individuals with low levels of health require temporary employment (or are more easily hired on such contracts by employers); and, second, individuals observed as leaving their permanent jobs and entering temporary employment may have unusually poor permanent jobs (Green and Heywood, 2011; Dawson et al., 2014). In this latter instance, the effect of contract type change on health will be biased downwards when using the fixed effects

approach because poor quality permanent employment is likely to influence both the change in contract type and overall health. This second mechanism is particularly pertinent given that changes in contract type often occur concurrently with employer or job changes. In fact, within our sample, around 70% of contract changes are job changes. Changes in contract types are therefore likely to be accompanied by changes in working conditions and employer pressures that may also be correlated with health. If individuals observed as transitioning from permanent to temporary employment have unusually poor permanent jobs, and even if there is a true causal effect of temporary employment on health, fixed effects models would give results that are biased downwards if we do not fully control for working conditions and other variables capturing job quality in the model.

To circumvent these confounding issues and to address the question of whether poor health is acquired by participation in temporary employment or precedes the transition into such employment, we adopt a novel baseline approach by comparing the health of people in permanent employment who never become temporarily employed (*Nevers*) with those currently in permanent employment who subsequently become temporarily employed in the future (*Futures* and *Switchers-in*) and those in permanent employment who were temporarily employed (*Switchers-out* and *Pasts*). Since measurements of health are recorded in a common environment the estimated differences should offer insights on the relative strengths of the selection/sorting and causal impact explanations. In particular, if poor health is a determinant of entry into temporary employment then those who will be on temporary employment contracts in the future should have poorer health relative to those that never enter temporary employment.

5. Regression results

This section reports the results of regressions that use our four measures of health as dependent variables. All our ordered measures (psychological distress, life dissatisfaction and poor general health) are estimated using ordered logistic regressions while our dichotomous dependent variable (psychological anxiety) is estimated using a binary logistic model. In line with existing literature (Araya et al., 2001; Breslau et al., 2008; Lindstrom and Rosvall, 2012), all health equations include as controls a range of socio-demographic and job-related characteristics. We augment the model with our set of mutually exclusive binary indicators of employment transitions in order to permit the identification of any underlying differences in health status relative to *Nevers*. For brevity and as our primary concern is with differences in health status between the sample groups, we present only the results that correspond to our employment transitions. A full list of variables included in the regressions can be found in the notes of Table 2 and their coefficient estimates in the online Appendix.

Tables 2 and 3 report the results for our casuals and fixed-term samples respectively. Marginal effects on the probability of belonging to the highest and lowest categories associated with each health measure are also reported. Consistent with existing studies, our results reveal that *Temps* report poorer levels of psychological distress and greater life dissatisfaction than *Nevers*. According to Table 2, *Nevers* are the least likely to report health problems, although the differences are not always statistically significant at conventional levels. *Switchers-out* and *Pasts* rarely have significantly worse mental health than *Nevers*. One exception is that *Switchers-out* report greater life dissatisfaction than *Nevers* at the 10% level, which may reflect regret about giving up the positive attributes of temporary work, such as more leisure time and greater flexibility. The same is also true for *Pasts* and our poor general health measure, which may reflect a physical health characteristic. These findings

suggest that mental health is not significantly lower for those who have previously experienced temporary employment and that even if temporary employment does negatively influence mental health (for which no supportive evidence was found here) then the effects are short-lived once back in permanent employment.

Table 2 also indicates that *Futures* and *Switchers-in* report significantly poorer mental and general health than *Nevers*, with the exception being *Futures* in the psychological anxiety model. These findings strongly suggest that poor mental health *precedes* a transition into temporary employment. The marginal effects suggest that the magnitudes of the differences are not small; for example, the probability of belonging to the highest category associated with psychological distress is increased by 0.4 percentage points (or 36 percent in relative terms) for *Switchers-in*, while the probability of reporting the lowest category is decreased by 8 percentage points (or 14 percent in relative terms) relative to *Nevers*, where the relative effect is derived by dividing the average marginal effect with the predicted probability for *Nevers*. Larger relative effects are estimated for *Switchers-in* for the other two mental health indicators, while the marginal effects for *Futures* are smaller but generally statistically significant.

[Insert Table 2 here]

The next important issue is how health changes as people move in and out of temporary employment. For the casuals sample in Table 2, *Switchers-in* report poorer mental health relative to *Nevers* than *Futures* do, suggesting that mental health deteriorates up to and peaks at the point of transition into temporary employment; however, the difference between the *Switchers-in* and the *Futures* coefficients are not statistically significant in any of the models. *Temps* report similar health to *Switchers-in*, with the differences in the respective

coefficients for the psychological distress, life dissatisfaction and general health models not being statistically significant. *Switchers-in* however have a higher probability of anxiety than *Temps*. These findings corroborate the view that seasonal, agency and casual temporary employment contracts do not necessarily contribute to poorer mental health and instead people with poor mental health select into these types of temporary work, either through choice or coercion.

[Insert Table 3 here]

Table 3 repeats the above analysis for our fixed-term sample. These results are much weaker compared to our casuals sample which highlights the heterogeneous nature of different forms of temporary employment in terms of its relationship with health indicators. There is evidence that individuals with greater life dissatisfaction will switch-in to temporary employment and that individuals with poor general health will move into temporary employment in the future. There appears to be no significant relationship between any of the health measures and *Temps*. Taken together, these results provide evidence in favour of a sorting explanation based on health for the casuals sample but the relationship is not as strong for the potentially more secure and higher quality fixed-term contracts.

Is poor job satisfaction a catalyst?

Although the results presented above are compelling, they may be the results of two distinct sorting mechanisms. Specifically, it is unclear whether our results correspond to a standard sorting mechanism whereby individual with poor health require temporary employment or

whether the future temporarily employed have experienced unusually poor permanent jobs, affecting both employment transitions and recorded low health.

While the above results include controls for variables that can be thought as proxies of job quality (promotion prospects, work location, shift working, etc.), it is possible to delve deeper into this issue by re-estimating the models with the inclusion of an extra explanatory variable: job dissatisfaction. Although it could be argued that job dissatisfaction itself may be an imperfect proxy for job quality and working conditions, we argue in line with Green and Heywood (2011) and Dawson et al. (2014) that this variable is likely to capture the crucial aspect of each individual's perception of whether their job is poor.

The job dissatisfaction variable is measured in each wave of the BHPS when respondents are asked the question: "*All things considered, how satisfied or dissatisfied are you with your present job?*" Responses were measured using a 7-point Likert scale and we rescaled it so that it is increasing in job dissatisfaction. The correlations between job dissatisfaction and the four health variables (distress, anxiety, life dissatisfaction and poor general health) are 0.245, 0.085, 0.332 and 0.127 respectively.

Table 1 summarizes job dissatisfaction for our various sample partitions and Figure 2 reports the percentage differences in job dissatisfaction for our groups relative to *Nevers*. Our casuals sample generally has higher job dissatisfaction than our fixed-term sample. For both temporary employment samples, *Futures*, *Switchers-in* and *Temps* have higher job dissatisfaction than *Nevers*, with the differences being particularly large for *Switchers-in*.

Table 4 reports the estimates of interest when job dissatisfaction is included as an additional control for our casuals and fixed-term samples. The inclusion of job dissatisfaction acts as a precursor to all indicators of poor mental health and the indicator of poor general health; in our casuals' sample, the only remaining statistically significant coefficient is for *Futures* in the psychological distress model and this coefficient's magnitude is also

substantially reduced. Although *Temps* still have significantly higher psychological distress than *Nevers* in the casuals' sample, the associated coefficient is substantially reduced. Taken together, these results add further weight to the argument that unhappiness in the workplace mitigates the role of employment arrangement *per se* with respect to health and, especially, mental health.

[Insert Figure 2 here]

[Insert Table 4 here]

Sensitivity checks

A first objection to the above results concerns the probable existence of different determinants of health by gender, a finding that is quite common in the literature (see, among others, Madden, 2010, and Robone et al., 2011). Moreover, in most of our models we find a positive coefficient for the female dummy, indicating a worse mental and general health status among women relative to men, *ceteris paribus*. For these reasons, we also estimated separate models by gender and then formally tested for differences across gender in the coefficients of our variables of interest, although it should be noted that the cell sizes become particularly small for some of our employment transitions dummies, mainly for the male sample. No substantial differences for the five variables of interest were identified, and this holds for all health measures and for both types of temporary contracts.

Second, it is possible that unobserved individual characteristics, such as motivation or attitudes towards work, may predict both the observed employment transitions and workers' health. In order to try to control for this unobserved individual heterogeneity, and owing to the time invariant nature of our base category of employment transitions (*Nevers*), our health

equations are re-estimated as linear correlated random effects models (following Mundlak, 1978). These are linear random effects models that include as additional controls the individual means of the time-varying variables to account for other sources of time-invariant individual heterogeneity. The pattern of the estimates for the employment transition dummies is very similar to that of our baseline results.

6. Conclusion

Labour market status and mental health are related and existing research suggests that lower labour market status is correlated with poorer mental health (Silla et al., 2005; Martens et al., 1999). However, it is debateable whether poor mental health is associated with a subsequent transition from permanent into temporary employment, as evidenced by Wagenaar et al. (2012), or whether being in temporary employment deteriorates mental health, as substantiated by Robone et al. (2011). This article has examined the association between mental health status (psychological distress, psychological anxiety and life satisfaction), general health and the transitions between temporary and permanent employment in order to identify whether there is selection or causation between mental health and employment status. We reveal two sets of results.

First, our empirical results reveal that permanent employees who will be in temporary employment in the future have lower levels of mental health relative to individuals who never transition into temporary employment. The strength of the relationship between employment type and mental health is similar for those in temporary employment and those in permanent employment who will be employed temporarily in the future. We surmise that people with low mental health select into temporary employment. It is likely that cross sectional evidence of the relationship between health and employment may be an amalgam of selection and

situational effects and overestimate the effect of contract type on mental health. These findings do not tell us whether individuals with poorer mental health choose to leave permanent employment of their own volition or whether such individuals were coerced to leave.

Second, controlling for job dissatisfaction in our regressions dampened the influence of employment type on mental health. This finding is aligned with the proposition that individuals observed as leaving permanent and entering temporary employment have lower quality jobs, where quality is proxied by job dissatisfaction. It appears that poor health influences employment contract type via a selection effect, and in part this selection process is governed by individuals who switch into temporary employment due to unhappiness in the workplace. Appropriate policy here would be for managers to focus on enhancing workers' job satisfaction as a way to ameliorate the effects of poor mental health on employment.

We recommend that future research moves in two directions: first, to investigate whether *Futures* and *Switchers-in* experience higher levels of discrimination (whether real or perceived) in permanent employment and, second, to investigate whether it is the circumstance of permanent employment and/or particular job characteristics that results in the individuals' unhappiness in the workplace.

These estimates draw on longitudinal data between 1991 and 2008/9 which coincides with a relatively long upturn in the economy and a short period of downturn towards the end. The investigation needs to be extended to identify whether the results identified here are stable across the business cycle or whether the associations are stronger / weaker at particular parts of this cycle, and as the data correspond to individuals in the UK it is also unclear whether these relationships are similar in other countries. Finally, we encourage others to replicate our analyses using other econometric approaches, other time periods or data from other geographical entities to assess the extent of external validity.

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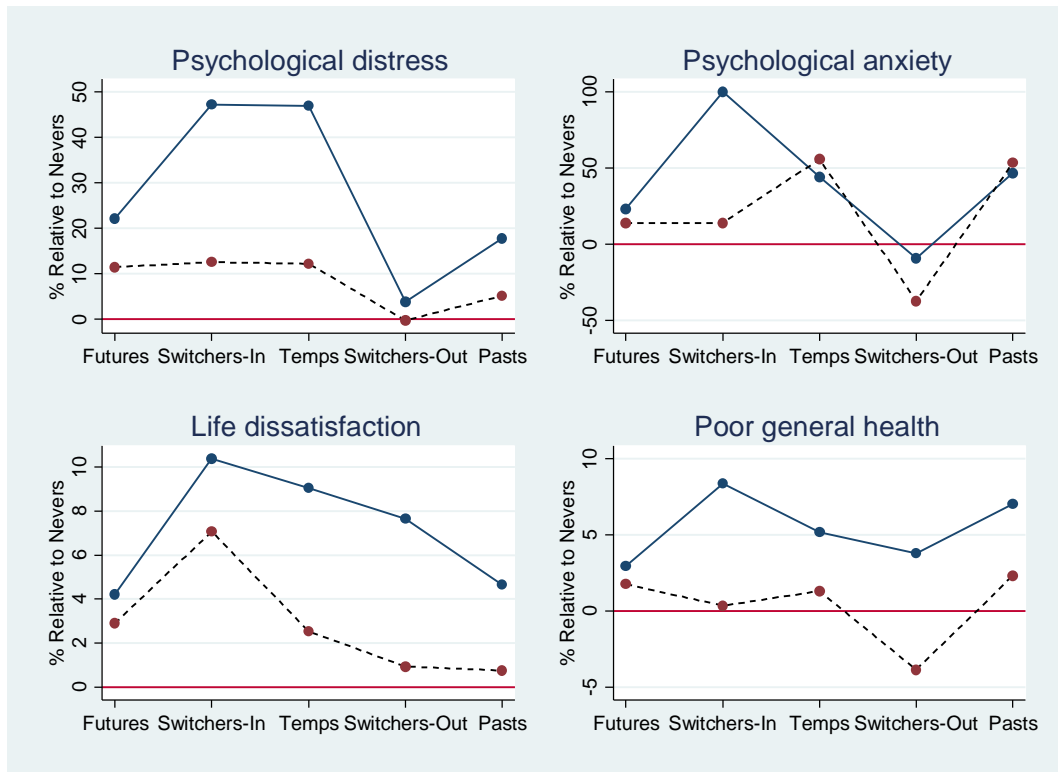


Figure 1: Percentage differences in reported health (mental health and general health)

Source: BHPS 1991-2008 and authors' calculations.

Notes: Solid lines correspond to the seasonal/agency temping/casual sample; dashed lines correspond to the fixed-term contract sample; Life dissatisfaction is only available in 1996-2000 and 2002-2008, while poor general health is unavailable in 1999.



Figure 2: Percentage differences in job dissatisfaction

Source: BHPS 1991-2008 and authors' calculations.

Notes: Solid lines correspond to the seasonal/agency temping/casual sample; dashed lines correspond to the fixed-term contract sample; Life dissatisfaction is only available for 1996-2000 and 2002-2008, while poor general health is unavailable in 1999.

Table 1: Sample means of health variables

	<i>(1) Seasonal/Agency Temping/Casual</i>						<i>(2) Fixed-Term</i>				
	<i>Nevers</i>	<i>Futures</i>	<i>Switchers-In</i>	<i>Temps</i>	<i>Switchers-Out</i>	<i>Pasts</i>	<i>Futures</i>	<i>Switchers-In</i>	<i>Temps</i>	<i>Switchers-Out</i>	<i>Pasts</i>
Psychological distress (0-12)	1.648	2.013	2.426	2.422	1.711	1.940	1.837	1.855	1.849	1.644	1.733
Psychological anxiety (0-1)	0.043	0.053	0.086	0.062	0.039	0.063	0.049	0.049	0.067	0.027	0.066
Life dissatisfaction (1-7)	2.758	2.874	3.044	3.007	2.969	2.886	2.838	2.953	2.828	2.784	2.779
Poor general health (1-5)	1.974	2.032	2.139	2.076	2.049	2.113	2.009	1.981	2.000	1.898	2.020
Job dissatisfaction (1-7)	2.632	2.823	3.251	3.047	2.583	2.617	2.773	3.141	2.756	2.662	2.703
Number of observations	46,133	1,822	244	405	204	1,467	1,567	227	477	219	1,362
Number of persons	7,538	472	244	340	204	315	400	227	336	219	275

Source: BHPS 1991-2008 and authors' calculations.

Notes: Number of observations and the sample means are calculated based on the sample for the psychological distress model; Life dissatisfaction is only available for 1996-2000 and 2002-2008, while poor general health is unavailable in 1999.

Table 2: Ordered and binary logistic regressions, where temporary work = Seasonal/Agency Temping/Casual

Dependent Variable	Psychological distress		Psychological anxiety	Life dissatisfaction		Poor general health	
Variable	Coefficients						
<i>Futures</i>	0.206***		0.231	0.228*		0.138*	
<i>Switchers-in</i>	0.330**		0.567**	0.389**		0.221*	
<i>Temps</i>	0.406***		0.072	0.314**		0.020	
<i>Switchers-out</i>	0.040		-0.419	0.259*		0.015	
<i>Pasts</i>	0.055		0.064	0.149		0.151*	
Predicted probabilities and average marginal effects (AMEs)							
Dependent Variable	Psychological distress		Psychological anxiety	Life dissatisfaction		Poor general health	
Probability of interest	P(y = <i>lowest</i>)	P(y = <i>highest</i>)	P(y = 1)	P(y = <i>lowest</i>)	P(y = <i>highest</i>)	P(y = <i>lowest</i>)	P(y = <i>highest</i>)
Predicted probability for <i>Nevers</i>	0.554	0.011	0.043	0.083	0.003	0.283	0.006
AMEs							
<i>Futures</i>	-0.050***	0.003***	0.010	-0.016**	0.001*	-0.026*	0.001*
<i>Switchers-in</i>	-0.080**	0.004**	0.029*	-0.025***	0.002*	-0.042*	0.001
<i>Temps</i>	-0.099***	0.005***	0.003	-0.021***	0.001*	-0.004	0.0001
<i>Switchers-out</i>	-0.010	0.0005	-0.014	-0.018*	0.001	-0.003	0.0001
<i>Pasts</i>	-0.013	0.001	0.003	-0.011*	0.001	-0.029*	0.001
Number of observations	50,275		50,751	32,098		47,801	
Number of persons	8,069		8,103	6,232		8,027	

Source: BHPS 1991-2008 and authors' calculations.

Notes: All models additionally include controls for gender, age, marital status, number of children, number of cigarettes smoked, education, housing tenure, trade union coverage and membership, labour income, total hours worked per week, managerial-supervisory status, holding a second job, promotion opportunities in current job, whether pay includes bonus or profit-share, whether member of employer provided pension, whether pay includes annual increments, location of work, working in rotating shifts, occupation, industry, sector, firm size, region and survey year; Predicted probabilities and average marginal effects are calculated over the *Nevers* sample for each model; Cluster-robust (at the level of individual) standard errors are used; *, ** and *** signify statistical significance at the 10%, 5% and 1% levels respectively; Life dissatisfaction is only available for 1996-2000 and 2002-2008, while poor general health is unavailable in 1999.

Table 3: Ordered and binary logistic regressions, where temporary work = Fixed-Term Contract

Dependent Variable	Psychological distress		Psychological anxiety	Life dissatisfaction		Poor general health	
Variable	Coefficients						
<i>Futures</i>	0.105		0.226	0.161		0.190**	
<i>Switchers-in</i>	0.177		0.180	0.338**		0.059	
<i>Temps</i>	0.033		0.320	0.097		0.022	
<i>Switchers-out</i>	-0.098		-0.637	0.024		-0.191	
<i>Pasts</i>	-0.033		0.326*	-0.055		0.054	
Predicted probabilities and average marginal effects (AMEs)							
Dependent Variable	Psychological distress		Psychological anxiety	Life dissatisfaction		Poor general health	
Probability of interest	P(y = <i>lowest</i>)	P(y = <i>highest</i>)	P(y = 1)	P(y = <i>lowest</i>)	P(y = <i>highest</i>)	P(y = <i>lowest</i>)	P(y = <i>highest</i>)
Predicted probability for <i>Nevers</i>	0.553	0.011	0.043	0.082	0.003	0.283	0.006
AMEs							
<i>Futures</i>	-0.025	0.001	0.010	-0.011	0.001	-0.036**	0.001**
<i>Switchers-in</i>	-0.043	0.002	0.008	-0.022***	0.001**	-0.012	0.0003
<i>Temps</i>	-0.008	0.0004	0.015	-0.007	0.0003	-0.004	0.0001
<i>Switchers-out</i>	0.024	-0.001	-0.020**	-0.002	0.0001	0.039	-0.001
<i>Pasts</i>	0.008	-0.0003	0.015	0.004	-0.0002	-0.011	0.0003
Number of observations	49,985		50,452	31,944		47,521	
Number of persons	7,984		8,019	6,164		7,945	

Source: BHPS 1991-2008 and authors' calculations.

Note: See Notes in Table 2.

Table 4: Ordered and binary logistic regressions, with the inclusion of job dissatisfaction

Dependent Variable	Psychological distress	Psychological anxiety	Life dissatisfaction	Poor general health
Coefficients				
Temporary work = seasonal / agency temping / casual				
<i>Futures</i>	0.122*	0.139	0.096	0.084
<i>Switchers-in</i>	0.085	0.383	0.086	0.100
<i>Temps</i>	0.276***	-0.027	0.170	-0.054
<i>Switchers-out</i>	0.029	-0.431	0.242	0.007
<i>Pasts</i>	0.052	0.056	0.158*	0.151*
Job dissatisfaction	0.385***	0.304***	0.548***	0.207***
Number of observations	50,243	50,715	32,082	47,765
Number of persons	8,069	8,103	6,232	8,027
Temporary work = fixed-term contract				
<i>Futures</i>	0.042	0.177	0.086	0.157*
<i>Switchers-in</i>	-0.055	0.022	0.165	-0.056
<i>Temps</i>	-0.008	0.295	0.050	0.0001
<i>Switchers-out</i>	-0.135	-0.649	-0.015	-0.213
<i>Pasts</i>	-0.039	0.316*	-0.084	0.053
Job dissatisfaction	0.388***	0.310***	0.554***	0.210***
Number of observations	49,954	50,417	31,929	47,486
Number of persons	7,984	8,019	6,164	7,945

Source: BHPS 1991-2008 and authors' calculations.

Note: See Notes in Table 2.

Highlights:

- Permanent workers with poor mental health select into temporary employment
- This selection effect is mediated by greater job dissatisfaction
- Cross sectional studies may overestimate the impact of employment type on health
- Panel data fixed effects models are also likely to give biased estimates

Supplementary tables

Table 1: Descriptive statistics – full set of sample means

	(1) Seasonal/Agency Temping/Casual						(2) Fixed-Term				
	Nevers	Futures	Switchers-In	Temps	Switchers-Out	Pasts	Futures	Switchers-In	Temps	Switchers-Out	Pasts
Mental health											
Psychological distress	1.648	2.013	2.426	2.422	1.711	1.940	1.837	1.855	1.849	1.644	1.733
Psychological anxiety	0.043	0.053	0.086	0.062	0.039	0.063	0.049	0.049	0.067	0.027	0.066
Life dissatisfaction	2.758	2.874	3.044	3.007	2.969	2.886	2.838	2.953	2.828	2.784	2.779
Poor general health	1.974	2.032	2.139	2.076	2.049	2.113	2.009	1.981	2.000	1.898	2.020
Job dissatisfaction	2.632	2.823	3.251	3.047	2.583	2.617	2.773	3.141	2.756	2.662	2.703
Smoking Behaviour											
Number of cigarettes per day	3.830	5.055	6.316	5.701	6.525	4.594	4.262	3.705	3.371	4.160	3.923
Demographics											
Age	38.782	36.774	36.742	39.254	37.255	41.592	35.500	35.339	38.707	38.831	42.029
Female	0.477	0.587	0.582	0.585	0.623	0.659	0.565	0.502	0.530	0.498	0.474
Marital Status											
Married or cohabiting	0.762	0.749	0.672	0.689	0.701	0.768	0.737	0.683	0.746	0.726	0.759
Widowed/divorced/separated	0.075	0.070	0.098	0.086	0.078	0.121	0.056	0.053	0.084	0.091	0.110
Never married	0.163	0.181	0.230	0.225	0.221	0.110	0.207	0.264	0.170	0.183	0.131
Household Structure											
No. of dependent children in household	0.615	0.648	0.660	0.625	0.760	0.760	0.699	0.687	0.723	0.726	0.770
Educational Attainment											
University	0.153	0.147	0.148	0.161	0.162	0.136	0.210	0.229	0.273	0.237	0.240
Further education	0.307	0.259	0.336	0.324	0.333	0.422	0.276	0.291	0.325	0.343	0.372
A-level	0.132	0.126	0.107	0.094	0.103	0.087	0.155	0.141	0.136	0.123	0.131
O-level/GCSEs	0.214	0.214	0.176	0.185	0.172	0.149	0.186	0.198	0.143	0.155	0.154
Other qualifications	0.075	0.123	0.127	0.126	0.103	0.110	0.103	0.066	0.065	0.073	0.061
No qualifications	0.120	0.132	0.107	0.111	0.128	0.095	0.069	0.075	0.059	0.069	0.043
Housing Tenure											

Outright owner	0.136	0.104	0.139	0.180	0.128	0.125	0.082	0.097	0.128	0.128	0.153
Own with Mortgage	0.697	0.707	0.594	0.551	0.603	0.695	0.745	0.692	0.683	0.676	0.720
Private renter	0.078	0.077	0.111	0.138	0.118	0.068	0.076	0.115	0.105	0.114	0.066
Social housing	0.089	0.111	0.156	0.131	0.152	0.113	0.097	0.097	0.084	0.082	0.061
<i>Job Characteristics</i>											
Union Covered, Member	0.333	0.363	0.250	0.141	0.196	0.331	0.377	0.282	0.229	0.297	0.382
Union Covered, Not Member	0.174	0.146	0.164	0.242	0.279	0.198	0.154	0.198	0.375	0.283	0.226
Not Covered	0.493	0.491	0.586	0.617	0.525	0.472	0.468	0.520	0.396	0.420	0.392
Annual Labour Income (log)	9.560	9.259	9.161	8.852	9.026	9.380	9.417	9.404	9.325	9.464	9.704
Total Hours Worked per week	39.456	36.909	35.971	31.686	34.485	34.971	38.103	38.806	35.390	37.489	38.101
Manager/Foreman/Supervisor	0.422	0.335	0.312	0.114	0.191	0.273	0.390	0.317	0.229	0.279	0.368
Holding a second job	0.082	0.128	0.115	0.111	0.113	0.091	0.139	0.159	0.157	0.128	0.100
Promotion opportunities available	0.524	0.499	0.451	0.203	0.441	0.458	0.529	0.467	0.342	0.530	0.474
Pay includes bonus / profit share	0.353	0.250	0.271	0.121	0.186	0.266	0.313	0.269	0.113	0.196	0.277
Member of employer pension scheme	0.576	0.509	0.344	0.131	0.294	0.519	0.533	0.463	0.338	0.489	0.643
Pay includes annual rises	0.470	0.478	0.340	0.190	0.476	0.494	0.481	0.471	0.392	0.530	0.536
Shift worker	0.085	0.102	0.062	0.054	0.078	0.059	0.075	0.075	0.048	0.069	0.057
<i>Flexibility in job location</i>											
Work from home	0.012	0.007	0.004	0.007	0.010	0.005	0.010	0.009	0.011	0.005	0.011
Other work location	0.069	0.052	0.066	0.141	0.103	0.052	0.068	0.150	0.132	0.105	0.089
Work at employer's premises	0.833	0.873	0.836	0.748	0.824	0.866	0.869	0.753	0.793	0.813	0.818
Work needs travelling	0.087	0.068	0.094	0.104	0.064	0.077	0.053	0.088	0.065	0.078	0.082
<i>Employing Sector</i>											
Private Firm	0.713	0.663	0.734	0.716	0.696	0.653	0.681	0.617	0.484	0.548	0.546
Civil Service	0.051	0.025	0.021	0.012	0.015	0.019	0.037	0.035	0.034	0.046	0.073
Local Government	0.130	0.199	0.148	0.185	0.196	0.205	0.160	0.198	0.268	0.219	0.227
Other Public	0.079	0.090	0.062	0.067	0.054	0.080	0.082	0.106	0.168	0.132	0.095
Non-profit	0.028	0.025	0.037	0.020	0.039	0.044	0.040	0.044	0.046	0.055	0.060
<i>Firm Size -Number of Co-workers</i>											

Workplace Size 1-49	0.462	0.495	0.500	0.578	0.549	0.488	0.436	0.476	0.398	0.393	0.416
Workplace Size 50-499	0.361	0.336	0.361	0.284	0.328	0.368	0.394	0.326	0.340	0.379	0.399
Workplace Size over 500	0.178	0.170	0.139	0.138	0.123	0.144	0.170	0.198	0.262	0.228	0.185
Number of observations	46,133	1,822	244	405	204	1,467	1,567	227	477	219	1,362
Number of persons	7,538	472	244	340	204	315	400	227	336	219	275

Note: Number of observations and the sample means are calculated based on the sample for the psychological distress model; Life dissatisfaction is only available for 1996-2000 and 2002-2008, while poor general health is unavailable in 1999. Source: BHPS 1991-2008 and authors' calculations.

Table 2: Ordered and binary logistic regressions, where temporary work = Seasonal/Agency Temping/Casual

Dependent Variable	Psychological distress	Psychological anxiety	Life dissatisfaction	Poor general health
Variable	Coefficients			
<i>Futures</i>	0.206***	0.231	0.228*	0.138*
<i>Switchers-In</i>	0.330**	0.567**	0.389**	0.221*
<i>Temps</i>	0.406***	0.072	0.314**	0.020
<i>Switchers-Out</i>	0.040	-0.419	0.259*	0.015
<i>Pasts</i>	0.055	0.064	0.149	0.151*
Smoking Behaviour				
Number of Cigarettes per day	0.009***	0.027***	0.015***	0.020***
Demographics				
Age	-0.008***	0.008*	0.009***	0.007***
Female	0.351***	0.736***	-0.004	0.128***
Marital Status (Reference: Never married)				
Married or cohabitating	0.013	-0.069	-0.504***	0.041
Widowed/divorced/separated	0.332***	0.459***	0.307***	0.044
Household Structure				
No. of Dependent Children	0.034**	0.021	0.119***	-0.041**
Educational Attainment (Reference: No Qualifications)				
Degree	0.178**	0.031	0.256**	-0.242***
Further education	0.073	0.043	0.237***	-0.144**
A-level	0.029	-0.193	0.292***	-0.157**
O-levels/GCSEs	-0.043	-0.132	0.198**	-0.180***
Other qualifications	-0.074	-0.250	-0.066	-0.134*
Housing Tenure (Reference: Social housing)				
Outright owner	-0.110*	0.040	-0.309***	-0.196***
Own with mortgage	-0.067	-0.006	-0.172**	-0.229***
Private renter	0.044	0.249*	-0.024	-0.075
Job Characteristics				
Union Covered, Member	0.072*	0.154	0.142***	0.099**
Union Covered, Not Member	-0.062	-0.085	0.023	0.020
Annual Labour Income	-0.016	-0.066	-0.032	-0.096***
Hours Worked per Week	0.005***	-0.001	0.008***	0.001

Manager / supervisor	0.074**	-0.150*	0.020	-0.060*
Holding a second job	0.019	-0.152	0.069	-0.097**
Promotion opportunities available	-0.124***	-0.238***	-0.106***	-0.103***
Pay includes bonus / profit share	0.023	-0.031	-0.015	-0.050*
Employer provided pension available	0.038	0.004	0.021	-0.027
Pay includes annual rises	-0.121***	-0.051	-0.178***	-0.033
Shift worker	-0.056	-0.345***	-0.009	-0.143**
<i>Flexibility in job location (Reference: work at employers' premises)</i>				
Work from home	0.159	0.148	-0.214*	-0.110
Other work location	-0.007	-0.194	-0.073	-0.054
Work needs travelling	-0.010	-0.069	-0.149**	-0.020
<i>Occupation One Digit Classification (Reference: Other)</i>				
Managers and Administrators	0.050	-0.216	-0.102	-0.248***
Professional	0.107	-0.131	-0.030	-0.149*
Associate Professional and Technical	0.049	-0.261	-0.005	-0.121
Clerical and Secretarial	0.035	-0.055	0.086	-0.143*
Craft and Related	-0.140*	-0.197	-0.057	-0.087
Personal and Protective Service	-0.035	-0.067	-0.124	-0.024
Sales	0.121	0.077	0.084	-0.115
Plant and Machine Operatives	-0.106	0.135	-0.099	-0.022
<i>Employing Sector (Reference: Private Firm)</i>				
Civil Service	0.051	0.252	-0.001	0.035
Local Government	0.073	0.067	-0.095	-0.006
Other Public	0.099	0.069	0.015	0.027
Non-Profit	0.143	0.029	-0.126	0.070
<i>Firm Size -Number of Co-workers (Reference: Over 500)</i>				
0-49	-0.003	-0.210*	-0.022	0.021
50-499	0.025	-0.120	0.072	0.012
<i>Standard Industrial Classification (Reference: Agriculture and Fishing)</i>				
Mining and Quarrying	-0.065	0.518	-0.003	-0.254
Manufacturing	0.215	0.346	0.046	0.111
Electricity, Gas and Water	0.419*	0.932*	0.033	0.173
Construction	0.055	0.363	-0.049	-0.055
Wholesale and Retail Trade	0.195	0.421	0.061	0.042

Hotels and Restaurants	0.259	0.589	0.191	0.043
Transport, Storage and Communication	0.192	0.484	0.086	0.043
Financial Intermediation	0.325**	0.582	0.107	0.007
Real Estate and Business Activities	0.240	0.544	0.141	-0.018
Public Administration and Defence	0.241	0.440	0.097	-0.007
Education	0.181	0.392	0.019	-0.130
Health and Social Work	0.217	0.792*	0.082	0.038
Social and Personal Services	0.262	0.708	0.166	0.081
Private Households and Extra-Territorial Organizations	0.249	0.776	-0.030	-0.033
Region Dummies Included	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Year Dummies Included	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Cut Thresholds				
Cut 1	0.254		-2.420	-2.128
Cut 2	0.860		-0.181	0.207
Cut 3	1.274		1.446	1.984
Cut 4	1.606		2.722	4.003
Cut 5	1.913		4.150	
Cut 6	2.206		5.829	
Cut 7	2.492			
Cut 8	2.785			
Cut 9	3.093			
Cut 10	3.453			
Cut 11	3.911			
Cut 12	4.567			
Log Likelihood	-81797.125	-8696.485	-45684.203	-54300.87
chi ² (p-value)	0.000	0.000	0.000	0.000
Pseudo R ²	0.009	0.057	0.014	0.016
Number of observations	50,275	50,751	32,098	47,801

Source: BHPS 1991-2008 and authors' calculations.

Notes: Cluster-robust (at the level of individual) standard errors are used; *, ** and *** signify statistical significance at the 10%, 5% and 1% levels respectively; Life dissatisfaction is only available for 1996-2000 and 2002-2008, while poor general health is unavailable in 1999.

Table 3: Ordered and binary logistic regressions, where temporary work = Fixed Term Contract

Dependent Variable	Psychological distress	Psychological anxiety	Life dissatisfaction	Poor general health
Variable	Coefficients			
<i>Futures</i>	0.105	0.226	0.161	0.190**
<i>Switchers-In</i>	0.177	0.180	0.338**	0.059
<i>Temps</i>	0.033	0.320	0.097	0.022
<i>Switchers-Out</i>	-0.098	-0.637	0.024	-0.191
<i>Pasts</i>	-0.033	0.326*	-0.055	0.054
Smoking Behaviour				
Number of Cigarettes per day	0.008***	0.028***	0.016***	0.021***
Demographics				
Age	-0.008***	0.008*	0.010***	0.007***
Female	0.326***	0.727***	-0.025	0.119***
Marital Status (Reference: Never married)				
Married or cohabitating	-0.005	-0.152	-0.526***	0.009
Widowed/divorced/separated	0.334***	0.400**	0.331***	0.018
Household Structure				
No. of Dependent Children	0.031*	0.003	0.128***	-0.041**
Educational Attainment (Reference: No Qualifications)				
Degree	0.200**	0.042	0.268**	-0.245***
Further education	0.104*	0.033	0.268***	-0.146**
A-level	0.033	-0.209	0.282***	-0.151**
O-levels/GCSEs	-0.030	-0.103	0.198**	-0.174**
Other qualifications	-0.088	-0.180	-0.053	-0.115
Housing Tenure (Reference: Social housing)				
Outright owner	-0.109	0.054	-0.313***	-0.190***
Own with mortgage	-0.073	0.038	-0.193**	-0.226***
Private renter	0.037	0.258*	-0.024	-0.060
Job Characteristics				
Union Covered, Member	0.082*	0.159	0.135**	0.098**
Union Covered, Not Member	-0.041	-0.063	0.059	0.052
Annual Labour Income	-0.029	-0.097*	-0.038	-0.103***
Hours Worked per Week	0.006***	-0.0002	0.008***	0.001

Manager / supervisor	0.089***	-0.110	0.030	-0.051
Holding a second job	0.034	-0.165	0.052	-0.095**
Promotion opportunities available	-0.139***	-0.265***	-0.095***	-0.102***
Pay includes bonus / profit share	0.041	-0.009	-0.017	-0.030
Employer provided pension available	0.039	0.018	0.012	-0.036
Pay includes annual rises	-0.115***	-0.048	-0.178***	-0.024
Shift worker	-0.048	-0.340***	-0.018	-0.135**
<i>Flexibility in job location (Reference: work at employers' premises)</i>				
Work from home	0.175	0.222	-0.169	-0.107
Other work location	-0.020	-0.189	-0.097	-0.051
Work needs travelling	-0.020	-0.099	-0.145**	-0.002
<i>Occupation One Digit Classification (Reference: Other)</i>				
Managers and Administrators	0.034	-0.203	-0.141	-0.234***
Professional	0.067	-0.172	-0.088	-0.148*
Associate Professional and Technical	0.033	-0.295	-0.040	-0.139*
Clerical and Secretarial	0.043	-0.127	0.067	-0.157**
Craft and Related	-0.141*	-0.212	-0.067	-0.065
Personal and Protective Service	-0.061	-0.114	-0.168	-0.004
Sales	0.106	0.093	0.095	-0.069
Plant and Machine Operatives	-0.109	0.115	-0.118	-0.026
<i>Employing Sector (Reference: Private Firm)</i>				
Civil Service	-0.003	0.194	0.035	0.059
Local Government	0.059	0.024	-0.066	-0.036
Other Public	0.085	0.048	0.015	-0.005
Non-Profit	0.117	-0.084	-0.082	0.048
<i>Firm Size – Number of Co-workers (Reference: Over 500)</i>				
0-49	-0.019	-0.180	-0.012	0.034
50-499	0.001	-0.085	0.065	0.003
<i>Standard Industrial Classification (Reference: Agriculture and Fishing)</i>				
Mining and Quarrying	-0.114	0.945	0.192	-0.225
Manufacturing	0.229	0.600	0.140	0.175
Electricity, Gas and Water	0.437*	1.134*	0.108	0.208
Construction	0.088	0.541	0.041	0.003
Wholesale and Retail Trade	0.197	0.617	0.126	0.056

Hotels and Restaurants	0.279	0.773	0.297	0.089
Transport, Storage and Communication	0.202	0.855*	0.180	0.132
Financial Intermediation	0.341**	0.860*	0.215	0.099
Real Estate and Business Activities	0.256	0.780*	0.211	0.028
Public Administration and Defence	0.293*	0.805	0.188	0.093
Education	0.261	0.659	0.143	-0.003
Health and Social Work	0.262	1.125**	0.199	0.145
Social and Personal Services	0.285	1.043**	0.301	0.154
Private Households and Extra-Territorial Organizations	0.234	0.827	-0.079	-0.002
Region Dummies Included	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Year Dummies Included	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Cut Thresholds				
Cut 1	0.153		-2.405	-2.112
Cut 2	0.761		-0.150	0.218
Cut 3	1.177		1.490	2.001
Cut 4	1.509		2.766	4.061
Cut 5	1.816		4.180	
Cut 6	2.113		5.945	
Cut 7	2.406			
Cut 8	2.706			
Cut 9	3.021			
Cut 10	3.386			
Cut 11	3.855			
Cut 12	4.509			
Log Likelihood	-80949.348	-8597.350	-45249.369	-53903.311
chi ² (p-value)	0.000	0.000	0.000	0.000
Pseudo R ²	0.009	0.058	0.015	0.016
Number of observations	49,985	50,452	31,944	47,521

Source: BHPS 1991-2008 and authors' calculations.

Notes: Cluster-robust (at the level of individual) standard errors are used; *, ** and *** signify statistical significance at the 10%, 5% and 1% levels respectively; Life dissatisfaction is only available for 1996-2000 and 2002-2008, while poor general health is unavailable in 1999.